



# PROCEEDINGS OF THE THIRTEENTH ANNUAL ACQUISITION RESEARCH SYMPOSIUM

---

## THURSDAY SESSIONS VOLUME II

### **Future Contracting for Availability**

Lou Kratz, Vice President and Managing Director, Logistics & Sustainment,  
Lockheed Martin

Bradd Buckingham, Senior Market Research Planner, Logistics & Sustainment,  
Lockheed Martin

**Published April 30, 2016**

Approved for public release; distribution is unlimited.

Prepared for the Naval Postgraduate School, Monterey, CA 93943.



ACQUISITION RESEARCH PROGRAM  
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY  
NAVAL POSTGRADUATE SCHOOL

The research presented in this report was supported by the Acquisition Research Program of the Graduate School of Business & Public Policy at the Naval Postgraduate School.

To request defense acquisition research, to become a research sponsor, or to print additional copies of reports, please contact any of the staff listed on the Acquisition Research Program website ([www.acquisitionresearch.net](http://www.acquisitionresearch.net)).



ACQUISITION RESEARCH PROGRAM  
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY  
NAVAL POSTGRADUATE SCHOOL

## Panel 11. Enabling Successful Outcomes in Performance Based Logistics

---

Thursday, May 5, 2016	
9:30 a.m. – 11:00 a.m.	<p><b>Chair: Stan Soloway</b>, President and CEO, Celero Strategies, LLC</p> <p><b><i>Performance-Based Logistics: Examining the Successes and Challenges When Operating in Stressful Environments</i></b></p> <p>William Lucyshyn, Senior Research Scholar, Center for Public Policy and Private Enterprise, UMD John Rigilano, Faculty Research Assistant, Center for Public Policy and Private Enterprise, UMD Darya Safai, Graduate Research Associate, School of Public Policy, UMD</p> <p><b><i>Effective PBLs Through Simultaneous Optimization and Simulation of Maintenance, Manpower, and Spare Parts</i></b></p> <p>Justin Woulfe, Executive Vice President, Technical Services, Syscon North America Samantha Alpert, Analyst, Syscon North America</p> <p><b><i>Future Contracting for Availability</i></b></p> <p>Lou Kratz, Vice President and Managing Director, Logistics &amp; Sustainment, Lockheed Martin Bradd Buckingham, Senior Market Research Planner, Logistics &amp; Sustainment, Lockheed Martin</p>



## Future Contracting for Availability

**Lou Kratz**—is the Vice President and Managing Director, Logistics and Sustainment, Lockheed Martin Corporation. Kratz is responsible for coordinating Lockheed Martin's logistics and weapon system sustainment efforts. Kratz leads Lockheed Martin's Automatic Identification Technology implementation, including RFID and UID. After successfully completing eight pilot projects, Kratz is now guiding Lockheed Martin's enterprise implementation of RFID. He also guides Lockheed Martin's logistics strategic planning, performance-based logistics efforts, logistics technology development, logistics human capital development, and cross-corporate logistics business initiatives. Previously, Kratz served as the Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs), within the Office of the Deputy Under Secretary of Defense (Logistics and Materiel Readiness). As such, he was responsible for guiding the DoD's logistics transformation to meet the operational requirements of the 21st century. Kratz oversaw the DoD's long-range logistics planning to meet the requirements of the Quadrennial Defense Review (QDR) and Joint Vision 2020.

[louis.kratz@lmco.com]

**Bradd Buckingham**—is the Senior Market Research Planner, Logistics & Sustainment, Lockheed Martin. Buckingham holds a Bachelor of Liberal Studies degree in Conflict, Politics, and National Policy from the University of Mary Washington. Buckingham currently provides research and analytic support in theater opening and sustainment, and in support of Army, USMC, and Defense Logistics Agency Depot management. His prior experience includes supporting the Army Manufacturing and Technology Program at Fort Belvoir, VA, as well as providing support to the Joint Defense Manufacturing and Technology Program's (JDMTP) Warfighter Brochure, and as a subject-matter expert for Army ManTech Small Business Innovative Research (SBIR) program. Buckingham was also the acting Army representative for the JDMTP SBIR Working Group.

[bradd.a.buckingham@lmco.com]

### Abstract

The United States faces unprecedented national security threats in an environment of continued federal budget limitations. The U.S. military must modernize its force to deter near-peer competitors and unstable states, while maintaining high readiness to deter and defeat extreme violent organizations. These factors put significant pressure on research, development, and procurement accounts to field critically needed capabilities in a time of overwhelming demands on resources.

These challenges are not unique to the United States. Many of our allies, faced with these same defense modernization and readiness issues, created new public-private partnerships through the implementation of Outcomes Based Service Contracting (OBSC). Under the outcomes based model, a customer (Defense) contracts and pays for business results delivered by a service provider (industry), rather than for defined activities, tasks, or assets. These types of contracts focus on the outcomes rather than piece parts or the manner in which the service is provided.

This paper explores the fundamental business decisions needed to identify opportunities that will allow the DoD to concentrate on its core competencies of deterrence and national defense. By buying outcomes versus equipment and services, the greater utilization of Outcomes Based Service Contracting will ensure readiness and modernization.

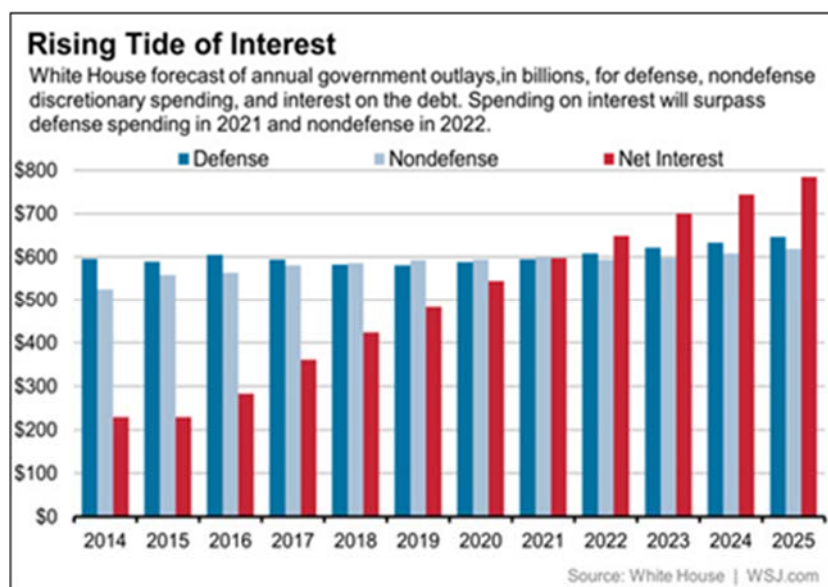


## Introduction

The United States is facing significant economic challenges, as evidenced by its existing \$18 trillion debt, rising entitlement expenditures, and increased national security needs. Despite recent calls by political leaders and industry to increase defense spending, the fundamental economic reality is that additional spending of any kind would merely add further to the national debt.

### **National Debt Interest Payments**

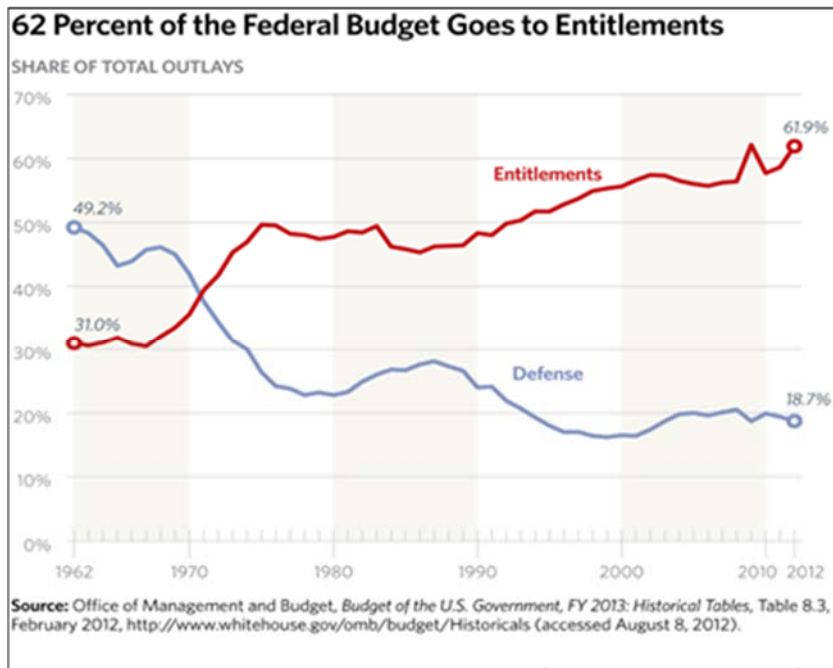
The U.S. Federal Government debt is currently \$18.1 trillion, with projected increases to the national debt for the foreseeable future. If interest rates go up, so does the cost of servicing both new debt and debt that is rolled over in the form of Treasury securities. With rising interest rates and expected increases in the Federal debt, at some point in the next 10 years annual interest payments are on pace to exceed the U.S. defense budget, as shown in Figure 1.



**Figure 1. National Debt Payments vs. Defense Spending**  
(Zumbrun, 2015)

### **Entitlement Spending**

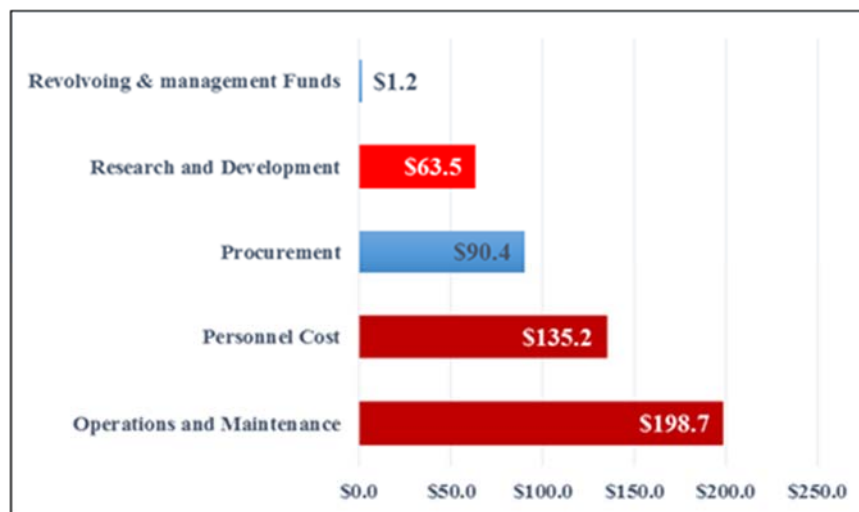
The United States faces rising costs for its social welfare system as the population continues to age. Unless retirement and healthcare entitlement expenditures are reduced, these programs will generate enormous spending pressures, making it more difficult to support other national needs, as shown in Figure 2.



**Figure 2. Entitlement Spending**  
(Office of Management and Budget, 2012)

The Department of Defense (DoD) is grappling with the drawdown from two wars and associated reset requirements, budget uncertainties, and program complexity.

One of the DoD's pressing concerns is how to get the most out of its sustainment funding while maintaining required weapons systems performance. Every dollar spent on Operations and Maintenance (O&M) and growing personnel costs reduces the resources available for required acquisition programs. As a result, the U.S. military must find innovative and practical solutions to modernize its force and maintain high readiness, as shown in Figure 3.



**Figure 3. 2015 U.S. Military Budget, by Appropriations Title (\$B)**

To successfully address these challenges, the United States must re-assess fundamental business decisions to ensure readiness and modernization while maintaining force structure. More than a decade ago, those actions were taken by many of our allies when faced with similar challenges. These nations altered their military structure to concentrate on the core competencies (and responsibilities) of deterrence and conflict resolution. Key decisions made include

- Migration of uniformed personnel to combat/combat support functions
- Privatization of infrastructure
- Employment of public/private partnerships to buy outcomes (versus equipment and services)

These actions offer proven strategies for consideration by the DoD, particularly in the area of outcomes based service contracts.

### Outcomes Based Services Contracting (OBSC)

Outcomes Based Service Contracting (OBSC) is a contracting mechanism that allows the customer to pay only when the contractor has delivered outcomes, rather than merely for activities and tasks. OBSC focuses on achieving required outcomes rather than performing to a set of prescribed specifications. In short, the buyer purchases the result of the product used (utilization of service or outcome) and not ownership of the product. The customer no longer directly manages or possibly even owns resources such as the inventory of spares. Suppliers find it in their interest to invest in designing more reliable products and more efficient repair and logistics capabilities to increase profitability.



**Figure 4. Traditional vs. Outcomes Based Model**

OBSC has an ability to produce preferred performances arising from the incentives within the contract, consequently reducing the long-term cost of the contract for the customer. The added benefit of OBSC is that suppliers will be incentivized to think of innovative ways to sustain high operational availability rates. This new strategy is rapidly becoming a central component in the management of after-sales service supply chains, with implications that potentially reach beyond defense and aerospace contracting. A summarization of Outcomes Based Service Contracting benefits to both the DoD and industry are highlighted in Table 1.



**Table 1. Outcomes Based Service Contracting Benefits**

<b>Outcomes Based Service Contracting</b>	
<b>DoD/Services Benefits</b>	<b>Industry Service Provider Benefits</b>
<b>Efficiency and predictability gains from paying for outcomes:</b> By only paying for a measurable specified outcome that is predictable, DoD and the Services will be able to make more accurate cost projections.	<b>Effectiveness, which breeds efficiency and security:</b> If payment of service providers is dependent on delivering measurable outcomes, there is greater motivation for service providers to perform high-quality work.
<b>Lower servicing costs:</b> OBSC lowers total contract costs as both the DoD and industry contribute complementary resources toward a joint outcome.	<b>Opportunities for greater control and efficiency:</b> OBSC involves a closer relationship between industry and the DoD. As a result the industry is more able to optimize and control outcome delivery, maximizing opportunities to reduce the cost of performance while still achieving acceptable outcomes.
<b>Lower transaction and monitoring costs:</b> Better alignment between the interests of the DoD/Services and industry and guaranteed outcomes means that less scrutiny of industry is required and internal DoD costs related to ensuring the outcome may be cut or reallocated.	<b>Opportunities for innovation:</b> Industry can use their first-hand experience of working alongside the DoD to drive innovation that meets DoD/Services' changing requirements. New processes required to deliver OBSC may also prompt internal innovations, such as the empowerment of cross functional service teams spanning multiple organizations.
<b>Increased motivation of industry service providers to provide high quality outcomes:</b> If payment to industry is dependent on delivering measurable outcomes, there is greater motivation for service providers to perform high-quality work.	<b>Sustainable competitive advantage:</b> Managing customers to optimize co-creation and co-production effectively is an integral part of successful OBSC. Service providers that become adept at customer management can develop a unique competitive advantage, providing more opportunities for the service provider to win contracts.

## **U.S. Allies and the Purchasing of Outcomes**

Outcomes Based Service Contracting is a successful and proven strategy for many military allies of the United States that face significant fiscal constraints on defense spending. The United Kingdom, Australia, and Singapore offer examples of successful implementation of OBSC.

### ***United Kingdom***

The UK Ministry of Defence has executed outcomes based contracting for over a decade. After the UK reduced their defense budget by almost 30% in the late 1990s as a result of the Cold War peace dividend, their involvement in Afghanistan and Iraq conflicts from 2000 forward pushed defense spending upward. At the same time, rapidly escalating budget constraints created tremendous pressure to reengineer defense spending in order to deliver needed capability while improving cost and performance.

Establishing a goal to reduce cost by 20% by 2006, they transitioned to “availability contracting,” paying industry for a given level of availability over long-term contracts with incentives to reduce support costs while making weapon systems more reliable and efficient. This shift from buying “inputs” (parts, labor, and services) to contracting for “outputs” (availability, capability) instituted a new approach based on partnering with industry and leveraging industry’s capital infrastructure.





By 2008 this approach generated cumulative savings of about £1.4 billion while simultaneously achieving performance improvements. As a further benefit, this business model enabled the UK Ministry of Defense to focus on combat operations while utilizing industry partnerships and capabilities for weapons system sustainment.

Case studies have analyzed how this approach has been applied to major UK weapons systems, including Tornado and Harrier fast jets, and logistics activities related to aerial refueling. These cases outline the benefits achieved on these platforms—including savings in the billions of pounds.

### ***Tornado and Harrier Aircraft***

Under the Tornado and Harrier programs, the Royal Air Force paid industry to provide a given level of availability. The arrangement included incentives to reduce support chain costs and to make the weapons system more reliable and the support-maintenance processes more efficient. The cost-reduction goal was a key driver in the transformation of the maintenance, repair, and overhaul activity for the two jet aircraft. This approach has successfully reduced the cost of support and decreased manpower and maintenance times while maintaining operational availability. The success of this approach is due primarily to the redefined relationship between the Ministry of Defence and industry, with both sides taking responsibility for and having a stake in maintaining the aircraft.

### ***Omega Aerial Refueling Services, Inc. (OARS)***

Aerial tankers are essential when moving large numbers of men and materials long distances, or when stretching the range and length of fighter combat air patrols. Most tanker aircraft are government-owned, but a segment of semi-privatized services exist with their current military fleet counterparts. One such company is Omega Aerial Refueling Services, Inc.

Omega Aerial Refueling Services (OARS) has a very successful 15-year history as the only company in the world conducting commercial, fee-for-service, in-flight refueling services. Omega's service includes using Omega-owned K-707 and KDC-10 to refuel British Royal Air Force (RAF) GR-4A Tornados and Canadian Air Force CF-18s during training operations.

Over the past 14 years, Omega has flown over 5,000 missions and 15,000 hours, while off-loading 180 million pounds of fuel and 49,000 airborne aircraft refueling plugs, and while maintaining an exceptional 97% mission completion rate.

### ***Australia Commercialization of Defense Support***

Consistent with trends in the UK, Australia sought to maximize its Defense budget by contracting to industry the non-combat functions that support its fighting forces. This initiative has fundamentally changed the landscape of the Australian defense sector by greatly expanding the role of private industry in supporting the Australian Defense Force (ADF) and, conversely, increasing the dependence of the Defense Force on the sustainment of key capabilities from private industry. Two examples of procurement projects that reflect the use of OBSCs are the Hawk Lead-In Fighter and the Eurocopter Tiger Armed Reconnaissance Helicopter.

### ***Hawk Lead-In Fighter***

The Hawk was the first Defense aerospace acquisition in Australia that integrated acquisition and through-life-support into a single cradle-to-grave long-term contract that was outcomes driven. It is a performance-based contract that casts BAE Systems not only as the OEM prime in supplying the aircraft, but also as the support prime, or platform steward, for



the aircraft where previously the Commonwealth acted as the prime in managing multiple support contracts for the support of an aircraft.

### ***Eurocopter Tiger Armed Reconnaissance Helicopter***

Building on the Hawk example above, the Eurocopter Tiger Armed Reconnaissance Helicopter contract with Australian Aerospace and the ADF contracted to acquire a comprehensive system that included the following:

- Sustaining the helicopter fleet by providing an ultramodern training system that included flight and ground-crew simulators
- Software support capabilities
- Ground-based mission planning and management system

The project was also novel for the way in which the final evaluation process was fast tracked to reduce costs to industry and Defense. It took only three months from receipt of proposals from the first four short-listed suppliers to select the tenderer to advance to the tender development stage. This sped up the process and saved tenderers money.

### ***Singapore***

#### ***Singapore Air Force Basic Wings Course***

The Republic of Singapore Air Force (RSAF) Basic Wings Course is an outstanding example of outcomes based service contracting. The Singaporean Air Force is not focused on the reliability of the training airplane, the availability of classroom and simulator training, or even the training facilities and the base. They want the ultimate outcome—trained pilots. The Singaporean Air Force created a partnership with a Training System Integrator that designed the curriculum, procured and supports the equipment, delivers all round-based training, and provides aircraft availability for use by RSAF flight instructors. The training outcomes and cost savings are unmatched anywhere in the world. The success of the program led to its duplication by the Australian Defense Force to train its next generation of pilots.

The adoption of outcomes based contracting by the Allies relied upon fundamental, strategic changes in their acquisition practices. Furthermore, success of their efforts was dependent upon several key enablers, including the following:

- Long-term contracts that enabled industry to amortize its capital investment.
- Government indemnification of the third party finance providers. This allowed leveraging of sovereign credit costs and provided a means to retain equipment while replacing the contractor if performance was lacking.
- Focus on delivered price and value for money (versus cost and profit). Customers focused on what they needed rather than what the contractor earned, which opened the door for incentive structures that greatly benefited the customer.
- Recognition of industry as full, committed partners—the industry partner only succeeds when the customer succeeds.

The above contracting examples highlight a developing theme—the commercialization of defense through the utilization of outcomes based contracting. The U.S. DoD partnered with industry should now build on these examples, enabling the DoD to better concentrate on its core competencies of deterrence and national defense by buying outcomes, versus equipment and services, to ensure readiness and modernization.



## **United States and Outcomes Based Service Contracting**

The U.S. DoD employed similar procurement strategies and approaches in the late 1990s. Faced with post–Cold War budgets, crumbling infrastructure, and low material readiness, the DoD aggressively pursued third party modernization of base housing, private sector modernization of the DoD’s energy infrastructure, and integrated, performance-based support to improve weapons system readiness. These initiatives enabled the DoD to secure modern facilities and enhanced readiness while minimizing pressure on procurement and Military Construction (MILCON) accounts.

The U.S. Navy also relies heavily on commercial merchant mariners for replenishment at sea and maritime force projection and distribution. Unfortunately, the adoption of many of these promising practices slowed as the DoD entered the Global War on Terror and budgets dramatically increased.

### ***Targets of Opportunity***

As summarized above, other countries have sought to maximize the effectiveness of their specific Defense budgets by contracting to industry the non-combat functions that support the fighting forces. The following are examples of how the United States could benefit from the increased utilization of OBSC.

#### ***Pilot Training***

Both the United States Navy and Air Force are struggling to maintain and modernize their pilot training aircraft. The Navy is pursuing an outcomes based approach for rotary wing training while the U.S. Air Force is pursuing a more traditional approach for fixed wing pilot training.

#### ***Tanker Capability***

The U.S. Air Force is focused on replacing the aging KC-35 with the KC-46. The capability provided by the 767 airframe based KC-46 greatly exceeds the range, endurance, and payload of the 707 based KC-135; however, the required capability is the delivery of fuel to receiver aircraft around the world, both in peacetime training and in wartime engagements. By examining capability-based service contracting options, there may be scenarios where contractors could deliver commercial fee-for-service in-flight refueling services similar to the UK experience.

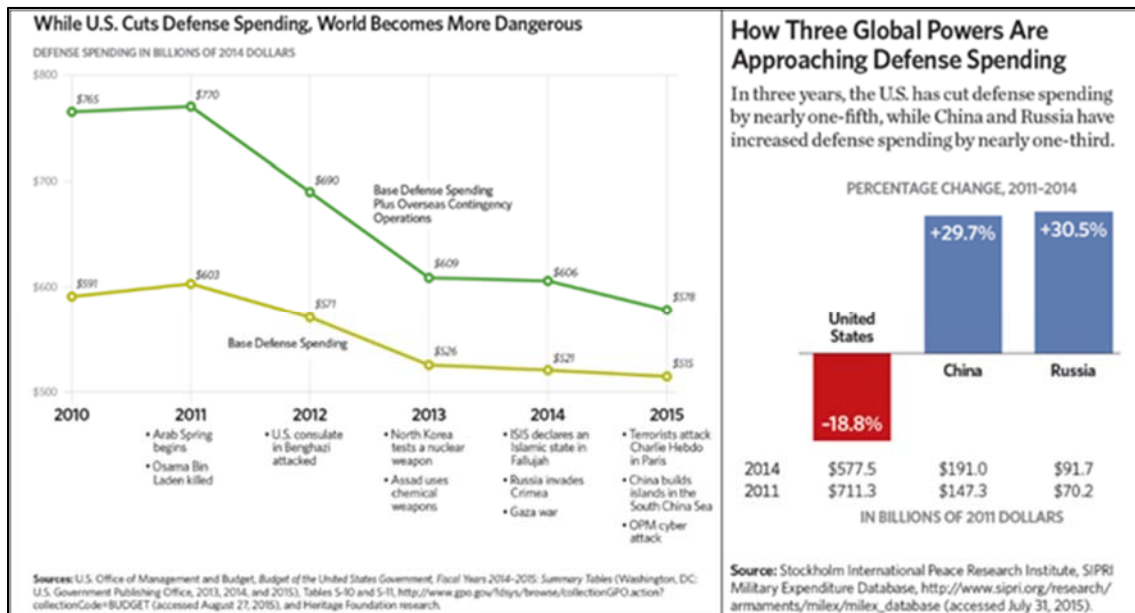
#### ***Military Sealift Command***

The Military Sealift Command (MSC) operates 19 Large, Medium-Speed, Roll-on/Roll-off ships or LMSRs. These ships have significantly expanded the nation’s sealift capability in the 21st century. LMSRs can carry an entire U.S. Army Task Force, including 58 tanks and 48 other tracked vehicles, plus more than 900 trucks and other wheeled vehicles. The ships can carry vehicles and equipment to support humanitarian missions as well as combat missions. This significant capability is delivered to MSC by a contracted civilian crew of 26 mariners. With over 130 ships in the inventory, MSC should explore outcomes based service contracting opportunities.

## **Road Ahead**

The United States will continue to face a chaotic threat environment and intense fiscal pressure, as shown in Figure 5.





**Figure 5. U.S. Defense Spending vs. Peer Competitors**

A logical path forward would be to build upon our prior experience and the experience of our allies to employ outcomes based service contracts for non-combat support modernization. Specific areas for application may include the following:

- Operator and maintainer training
- Tactical distribution vehicles
- Air refueling
- Non-combat surface ship modernization
- Network operations
- Search and Rescue modernization
- Carrier On-board Delivery modernization

As an alternative to reduced force structure and combat capability, the DoD could make better use of available government and industry resources at the system, subsystem, and component levels. In that context, outsourcing should be considered in functions where robust capability already exists in the private sector. Outsourcing those functions could result in a 10–15% reduction in personnel, and a 20–30% cost savings.

Examples include maintenance and repair of commercial items, such as propulsion systems that are used and maintained in the private sector. In many instances, the DoD has established duplicate capabilities for maintenance, repair, and overhaul of commercial derivatives of these items with minor modifications for military use that could easily be supported by the private sector.

The DoD maintains 298,897 capital buildings and over 210,000 structures, valued at more than \$772 billion. These capabilities were sized to support over 12 years of conflict, but in many cases trace their roots back to World War II. This infrastructure may be oversized for current needs.

The expanded use of Outcomes Based Service Contracts through public–private partnerships delivers increased real time capabilities to the DoD. These relationships provided concrete benefits to the government and would reduce the full life cycle cost.

- Private relationships reallocate risk and up front capital requirements, allowing the government to spread program cost over time. Freeing up the initial capital requirement affords the government the ability to acquire products and services with the limited resources provided in today’s austere budget environment.
- Public–private partnerships provide the government with an increased infrastructure and technological capability without having to allocate current year dollars for additional property, plants, equipment, and unnecessary overhead.

When we buy capability as an outcome, the price point is no more than the operating cost of the legacy infrastructure, system, or platform.

## Conclusion

The DoD is in a challenging environment characterized by budget deficits, economic uncertainties, and increased public scrutiny. These challenges are driving the need for a fundamental shift in the way the government acquires services, creating an opportunity to transition toward an outcomes-driven approach. Governments in the United Kingdom, Australia, and other countries have been successfully utilizing outcomes based service contracting for years. These same contracting principles can be readily applied across the DoD and its industry partners.

## References

- Office of Management and Budget. (2012, August 8). *Budget of the U.S. Government, FY 2013* [Table 8.3]. Retrieved from <http://www.whitehouse.gov/omb/budget/historicals>
- Zumbrun, J. (2015, February 3). The legacy of debt: Interest costs poised to surpass defense and nondefense discretionary spending. *Wall Street Journal*. Retrieved from <http://blogs.wsj.com/economics/2015/02/03/the-legacy-of-debt-interest-costs-poised-to-surpass-defense-and-nondefense-discretionary-spending/>





ACQUISITION RESEARCH PROGRAM  
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY  
NAVAL POSTGRADUATE SCHOOL  
555 DYER ROAD, INGERSOLL HALL  
MONTEREY, CA 93943

[www.acquisitionresearch.net](http://www.acquisitionresearch.net)

# Contracting for Availability

**Monterey, California  
May 5, 2016**



**Lou Kratz**

Vice President and Managing Director

Logistics & Sustainment

Corporate Engineering, Technology, and Operations



# Ground Truth



- **Global security environment is deteriorating**
  - extreme violent organizations
  - aggressive near peer competitors
  - unstable “nation states”
- **US capabilities in desperate need of modernization**
  - tired iron after decades of conflict
- **Adversaries are winning the cost exchange ratio**
  - and operating inside our strategic OODA loop
- **National debt continues to rise**
  - no magic bullet to increase defense spending

**Incremental acquisition reform is insufficient  
to meet current national needs**

# What We Need To Do



- **Adopt commercial acquisition process**
  - zero base acquisition regulations
- **Focus requirements process on outcomes**
- **Buy outcomes / availability**

# Agenda



- **Threat Environment**
- **Federal Budget**
- **Acquisition Reform Status**
- **Buying Outcomes / Availability**

# Threat Environment



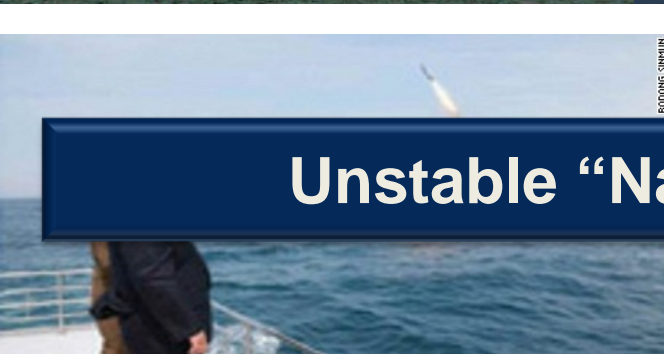
## Extreme Violent Organizations



## Emerging Peer Competitors



## Unstable "Nation States"

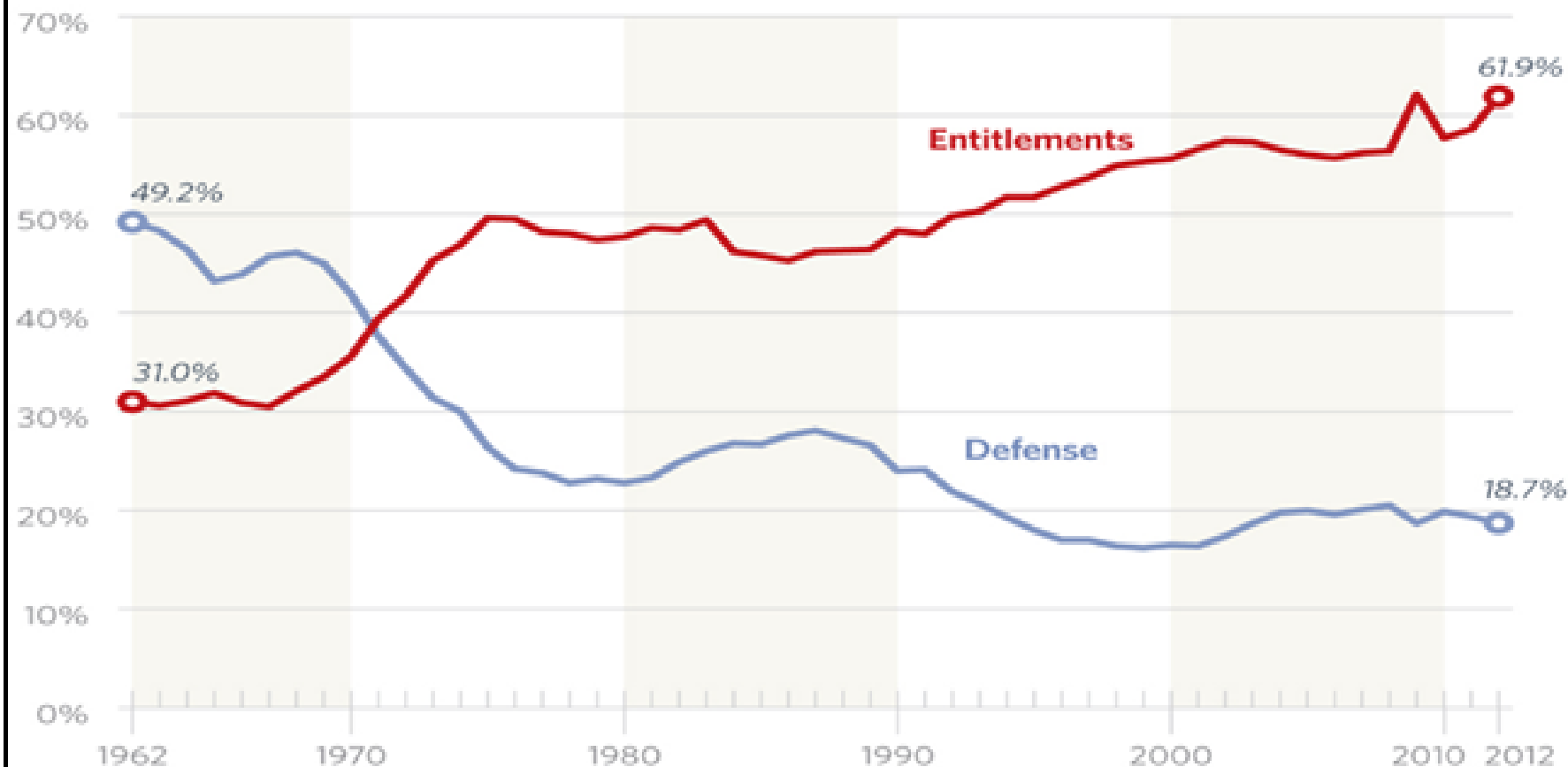


# Federal Budget



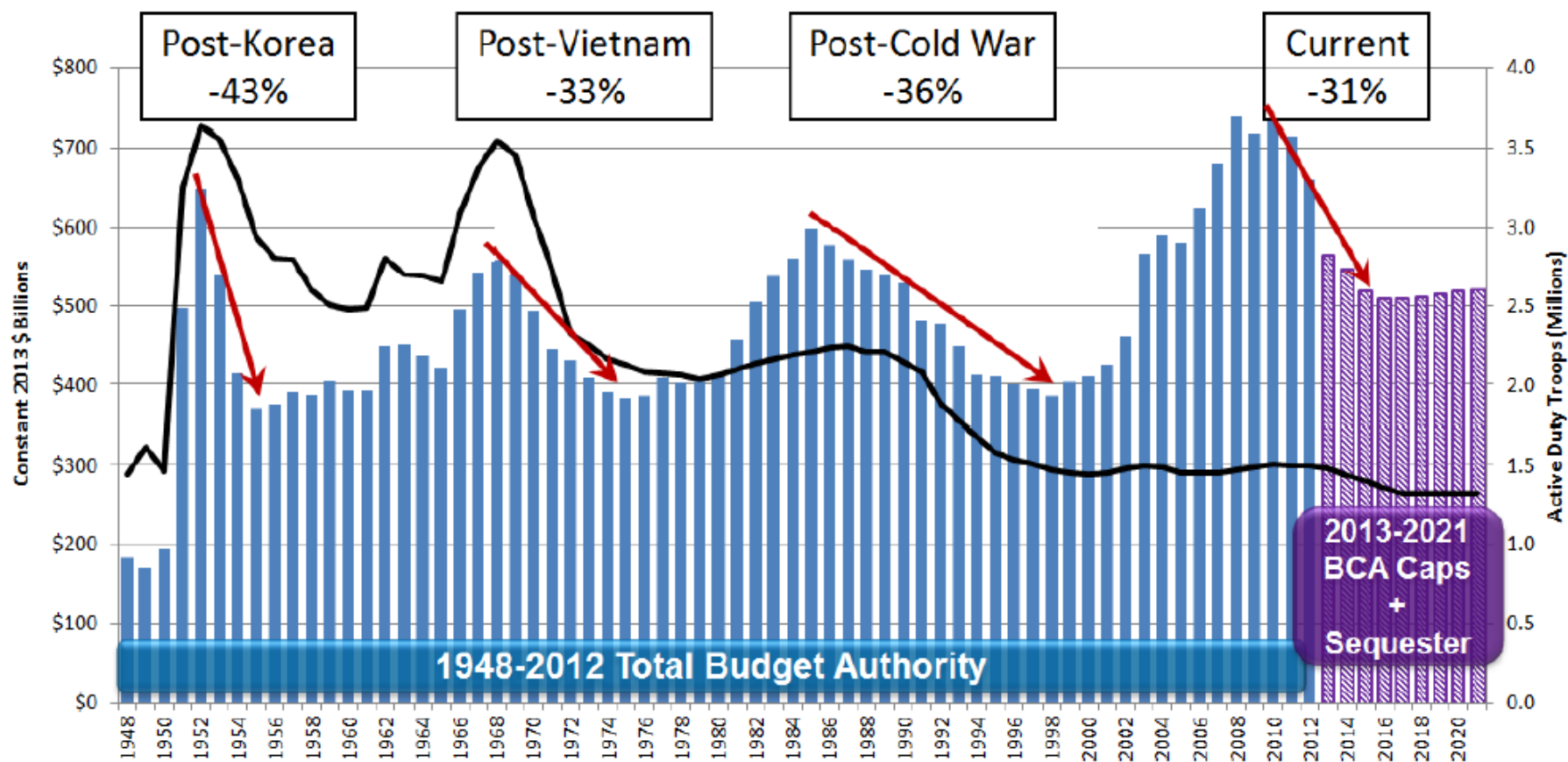
## 62 Percent of the Federal Budget Goes to Entitlements

SHARE OF TOTAL OUTLAYS



**Source:** Office of Management and Budget, *Budget of the U.S. Government, FY 2013: Historical Tables*, Table 8.3, February 2012, <http://www.whitehouse.gov/omb/budget/Historicals> (accessed August 8, 2012).

# DoD Budget



\*Source: Center for Strategic & International Studies; International Security Program

# Acquisition Reform Status

- Better Buying Power
- Congressional efforts
- DoD Innovation





# R&D Trends

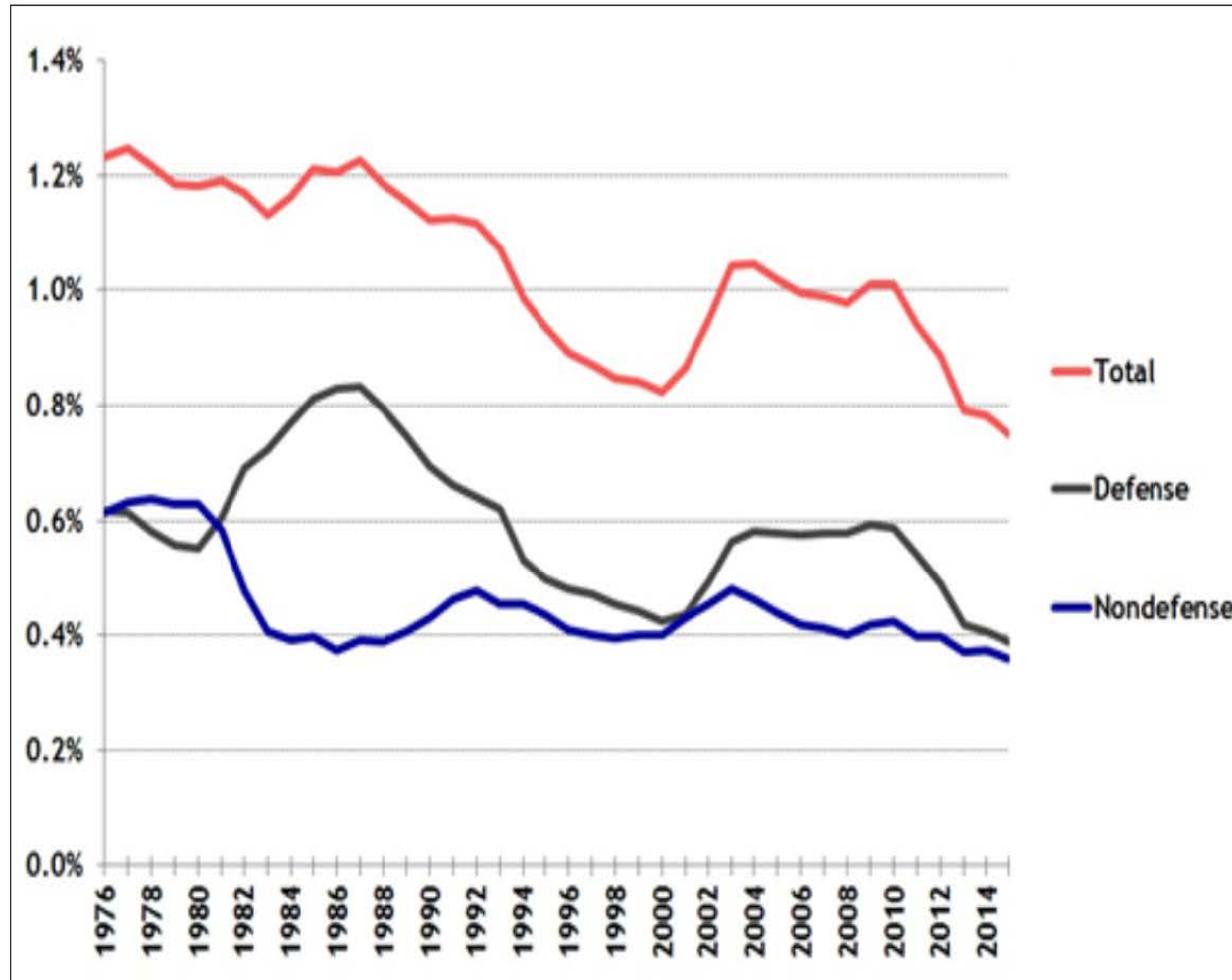
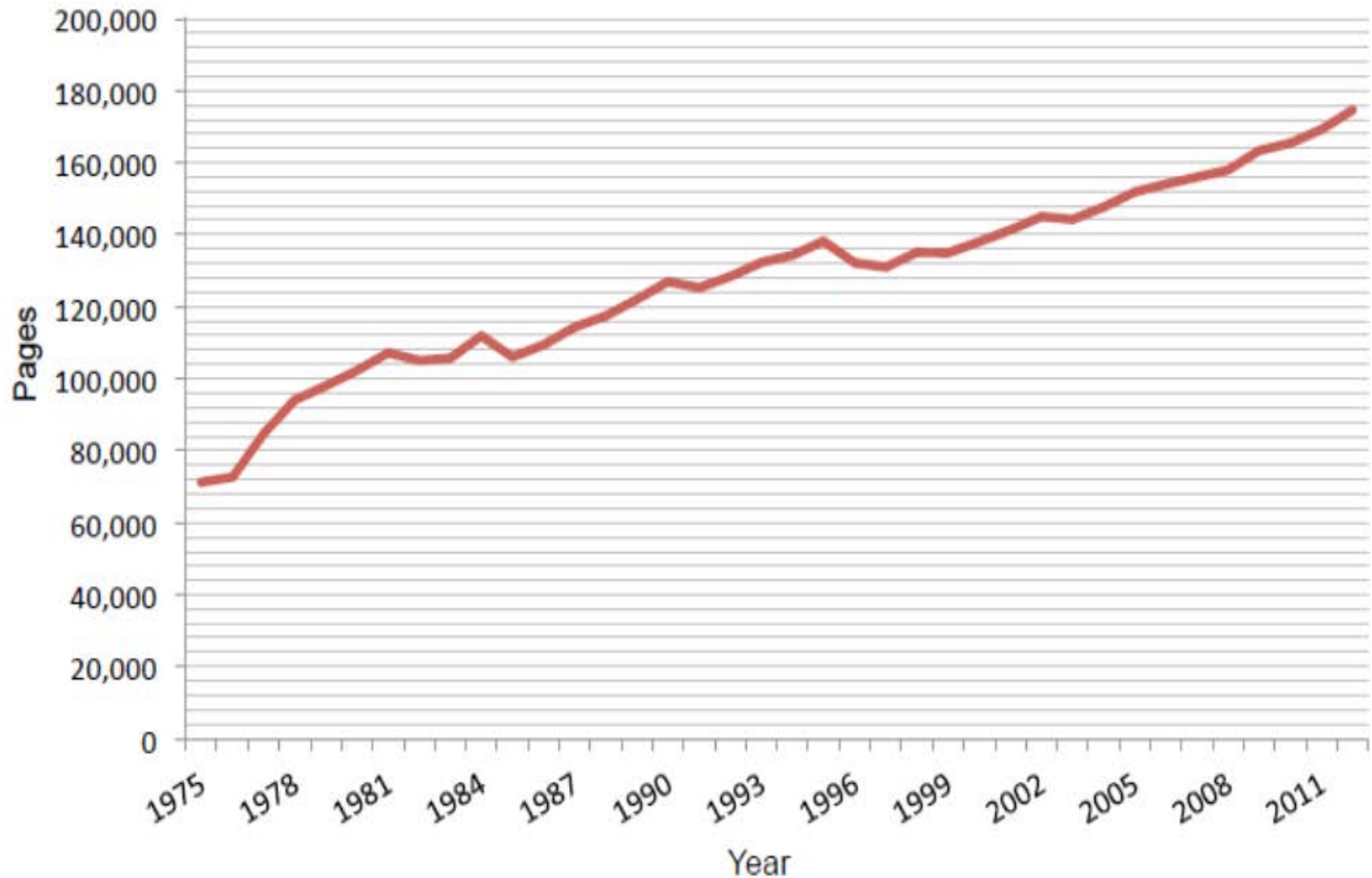


Figure 2. Trends in Federal R&D (% of GDP)

# Acquisition Regulations



Source: McLaughlin, P. (2013), On The Human Costs of the US Regulatory System: Should Congress Pressure Agencies to Make Rules Faster?, Senate Judiciary

LS160675 Committee Testimony, August, 2013

# Allied Experience





# Buying Outcomes / Availability



# Buying Outcomes / Availability



- **Price point at no more than O&M cost of existing system**
- **Financed by third parties**
  - awash in cash \$74.5T
- **Existing statutory framework sufficient**
  - long term contracts preferred

**Do we have the national will to move forward?**

# Road Ahead: Back to the Future



- **Complete zero base review of existing regulations**
- **Focus requirements process on effects**
- **Employ outcome based service contract for all non-combat systems**



